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THE TAXONOMIC HISTORY OF THE SOUTH AND CENTRAL AMERICAN CRICETID RODENTS OF THE GENUS *ORYZOMYS*.—PART 1: SUBGENUS *ORYZOMYS*

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In this résumé, the fourth of my series on the Cricetidæ, which I have had to divide into two parts because of its length,[1] I have introduced, on account of the increased complexity of the material and the large number of described forms, a slight change of arrangement in the summaries of species. With the idea of bringing together those names which may at length be proved synonyms or members of only a few well-marked species, I have grouped the species of the larger subgenera approximately under the generalized phytogeographical regions (shown on map, p. 13) within which their type localities fall instead of listing them as in earlier papers in the chronological order of their descriptions. In the case of the *Oryzomys* of Central America however, I have used the "groups" of Goldman (1918).

The allocations made in this paper and hereafter of the old names of Wagner, the Pictets, Lund, and others, are based upon careful reperusal of their work and are purely provisional, being intended merely to suggest probable generic or subgeneric affinities.

Species from north of the Mexican border are not considered.

HISTORICAL STATEMENT[2]

ORYZOMYS Baird

Subgenus ORYZOMYS Baird

1801. Azara described (p. 82)[1] RAT SECOND OU RAT A GROSSE TÊTE, (p. 86) RAT TROISIÈME OU RAT ANGOUYA, and (p. 98) RAT SIXIÈME OU RAT A TARSE NOIR (an *Oligoryzomys* ?).

1802. Azara further described (p. 87) RAT A GROSSE TÊTE (under the name COLA IGUAL AL CUERPO), (p. 89) ANGUYA, and (p. 91) RAT A TARSE NOIR (under the name COLILARGO) (an *Oligoryzyomys* ?).

[1]The subgenus *Oryzomys* only has been included in Part 1. *Oligoryzomys*, *Thallomyscus*, and *Melanomys* are treated in Part 2. The bibliography for both parts appears at the end of Part 2.

[2]A copy of the newly published 'A Manual of Neotropical Sigmodont Rodents,' by Nils Gyldenstolpe (Kungl. Svenska Vetenskapsakad. Handlingar, (3) XI, No. 3, pp. 1–164 and plates, 1932) has just been received. This work should be consulted for each cricetid genus. It reached my hands too late to receive treatment under the generic headings.

1819. Desmarest applied names to the rats of Azara's FRENCH edition: (p. 62) *Mus angouya* (n. sp.) to his ANGOUYA; (p. 63) *Mus cephalotes* (n. sp.) to his RAT A GROSSE TÊTE; and (p. 64) *Mus nigripes* to his RAT A TARSE NOIR (an *Oligoryzomys* ?).

1820. Desmarest erroneously synonymized (p. 305) ANGOUYA with the RAT DU BRÈSIL (*Holochilus brasiliensis* (Desmarest)).

1830. Rengger remarked upon (p. 229) "*anguya*" and described (p. 232) *Mus longitarsus* (n. sp.) (an *Oligoryzomys* ?).

1832. Bennett described (p. 2) *Mus longicaudatus* (n. sp.) (an *Oligoryzomys* ?).

1835. Bennett described (p. 191) *Mus megallanicus* (n. sp.) (an *Oligoryzomys* ?).

1837. Waterhouse described (p. 19) *Mus flavescens* (n. sp.) (an *Oligoryzomys* ?).

1839. Waterhouse remarked further upon (p. 46) *flavescens* (an *Oligoryzomys*). He described (p. 65) *Mus galapagoensis* (n. sp.). With his erection (p. 75) of *Hesperomys*, a blanket genus, the above species as well as most other American Cricetidæ became included therein.

1841. Lund[1] gave brief and scattered notes upon a number of species of Cricetidæ, the only ones of which belonging clearly to *Oryzomys* were *Mus vulpinus* (n. sp.), preoccupied by *Mus vulpinus* Brants, 1827 (a *Holochilus*), and re-named by Schinz, 1845, *vulpinoides;* and *Mus laticeps* (n. sp.), a rather short-tailed form (pp. 279–280). Lund's description of "*Mus longicaudatus*" suggests *Oligoryzomys*. *Expulsus* Lund was placed by Trouessart, 1898, in *Oryzomys*, but later removed by Thomas to *Hesperomys*.

1842. Wagner described (p. 362) *Hesperomys subflavus* (n. sp.), which description strongly suggests the genus *Delomys* Thomas (see *Delomys*, 1917). He described also (p. 361) *Hesperomys arviculoides* and *H. orobinus* (both *Zygodontomys* ?). They were placed by Trouessart in *Oryzomys;* but after reading carefully Wagner's amplified description in the 'Säugethiere Supplement' I cannot endorse that opinion.

1843. Wagner placed (p. 517) *galapagoensis* in *Hesperomys* (*Habrothrix*).

1844. Pictet and Pictet wrote of (p. 61) "*angouya,*" which they had received from Bahia. Their figure (Pl. XV) is unquestion-

[1]A German translation of parts of Lund's work may be found in Isis, 1843, XXXVI, pp. 738–760.

ably that of an *Oryzomys*, but it is uncertain whether their specimen was identical with *angouya* Desmarest.

They described (p. 64) *Mus cinnamomeus* (n. sp.) and figured it (Pls. XIX and XXIII, fig. 5). This animal again strongly suggests one of the shorter-tailed *Oryzomys*. They also described (p. 67) *Mus maculipes* (n. sp.) an *Œcomys*-like (?) animal with very white underparts.

1845. Wagner described (p. 147) *Hesperomys concolor* (n. sp.), *Hesperomys eliurus* (n. sp.), *Hesperomys pygmæus* (n. sp.) (the last two *Oligoryzomys*), and *Hesperomys brachyurus* (n. sp.) (a *Zygodontomys* ?). The last he thought probably identical to *lasiurus* (Lund) (a *Zygodontomys* ?).

1845. Schinz described (p. 193) *Mus vulpinoides* (n. sp.), based upon the *Mus vulpinus* of Lund (1841).

1848. Peale described (p. 51) *Mus peruvianus*, n. sp. (an *Oligoryzomys* ?).

1850. Wagner further described (p. 309) *pygmæus* (an *Oligoryzomys*), (p. 311) *concolor*, and (p. 313) *brachyurus* (a *Zygodontomys*).

1854. Burmeister discussed (p. 171) *laticeps* and (p. 173) *eliurus* (an *Oligoryzomys*) under *Hesperomys* (*Calomys*) and in an appendix (p. 185) remarked upon species contained in recent works by Lund, Wagner, and Pictet.

1855. Burmeister (1854), reviewing the status of "*Hesperomys*," discussed briefly (p. 7) *anguya* Azara, *laticeps* (referring *subflavus* and *cephalotes* to it), *longicaudatus*, *eliurus*, and *flavescens* (the three last *Oligoryzomys*).

1859. Baird, giving a careful diagnosis, erected (pp. 457–458) *Oryzomys* new subgenus of *Hesperomys* with type and (then) only species *Hesperomys palustris* (Harlan). *Oryzomys* as now understood is much broader than Baird originally allowed.

1860. De Saussure, discussing the Cricetidæ of Mexico, described (pp. 98, 102–103) *Hesperomys fulvescens* (n. sp.) (an *Oligoryzomys*).

1860*b*. Tomes described (p. 254) *Hesperomys albigularis*, n. sp.

1872. Hensel described (p. 36) *Hesperomys ratticeps*, n. sp. He gave (p. 37) added information about *flavescens* (an *Oligoryzomys*) and described (p. 42) *dorsalis* (a *Delomys*). He wrote concerning "*darwinii* Waterhouse" which later was described by Leche as a new subspecies of *laticeps*.

1874. Coues re-characterized (p. 183) the subgenus *Oryzomys*.

1876. Alston described *Hesperomys couesi*, n. sp. (see Thomas, 1893).

1877. Coues further delineated (p. 111) the genus *Oryzomys*.

1880. Alston, in his synopsis of the Central American species of *Hesperomys*, placed (p. 143) *couesi* in the subgenus *Oryzomys*.

1881. Thomas described (p. 4) *Hesperomys* (*Calomys*) *coppingeri*, n. sp. (an *Oligoryzomys*).

1882. Thomas, reporting Stolzmann's large collection from Peru (pp. 102–105), clearly used *Calomys* in the subgeneric sense for those animals which today are classed in *Oryzomys*, i.e., "*laticeps*," "*albigularis*," "*longicaudatus*" (an *Oligoryzomys* re-named *stolzmanni* in 1894), and also *spinosus*, n. sp. (later made the type of *Neacomys*).

1883. Pelzeln, writing of Natterer's specimens, gave additional data on *eliurus*, *pygmæus* (both *Oligoryzomys*), and *concolor*.

1884. Thomas, reporting Jelski's collection from Peru, revised (p. 448) the subgenera of *Hesperomys*. Prior to this, most *Oryzomys* had been placed in *Calomys* Waterhouse.[1] He now included with the type, *palustris: angouya*, *albigularis*, *galapagoensis*, *longicaudatus* (an *Oligoryzomys*), and *spinosus* (a *Neacomys*)—" . . . nearly 30 in all."
He described *Hesperomys* (*Oryzomys*) *laticeps nitidus*, n. subsp.

1886. Leche commented (p. 692) upon *ratticeps*. He described (p. 693) *H. laticeps intermedia*, n. var., based upon "*darwinii*" of Hensel, 1872, and discussed *saltator* (not described by Winge until 1887).

1886. Thomas reached the (probably erroneous) conclusion (pp. 421–422) that *pyrrhorhinus* Wied (a *Rhipidomys*) was really an *Oryzomys*.

1887. Winge compared (p. 46) *laticeps* with "*longicaudatus*" (an *Oligoryzomys*) and described (p. 48) *Calomys saltator*, new name (referred to by Leche, 1886, and Thomas, 1901). He treated (p. 51) *laticeps* exhaustively. His *tener* (p. 15) was placed in *Oryzomys* by Trouessart (1898) and later removed by Thomas to *Hesperomys*.

1890. Coues raised (p. 4164) *Oryzomys* to generic rank—"An American genus . . . "

1891*a*. J. A. Allen described (p. 214) *Hesperomys* (*Oryzomys*) *alfaroi*, n. sp.

1891*b*. J. A. Allen, describing (p. 289) *Oryzomys aquaticus*, n. sp., in-

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[1]For discussion of untenability of *Calomys* see Tate, 1932, Amer. Mus. Novit., No. 541, pp. 10, 11, 14.

dicated (p. 294) his preference that *Oryzomys* should be treated as a full genus.

1891*c*. J. A. Allen described (p. 193) *Oryzomys talamancæ*, n. sp.

1892. J. A. Allen described (p. 48) *Oryzomys bauri*, n. sp.

1893. Goeldi wrote of *ratticeps* under *Hesperomys*, omitting subgeneric distinction.

1893. Thomas remarked upon (p. 403) the composite nature of *couesi* and selected the type. He restricted the species and proposed (p. 403) *Oryzomys fulgens*, n. sp., and (p. 404) *Oryzomys melanotis*, n. sp.

1893. Ihering listed under subgenus *Oryzomys: dorsalis* (a *Delomys*), *laticeps*, and *pyrrhorhinus* (a *Rhipidomys*). He placed *ratticeps* under subgenus *Calomys*.

1893. Allen and Chapman described (p. 212) *Oryzomys speciosus*, n. sp., (p. 213) *Oryzomys trinitatis*, n. sp., (p. 214) *Oryzomys velutinus*, n. sp., and (p. 215) *Oryzomys brevicauda*, n. sp. (The last was removed in 1897 to *Zygodontomys*).

1893. J. A. Allen described (p. 239) *Oryzomys costaricensis*, n. sp. (an *Oligoryzomys*).

1894. Thomas, after temporarily rejecting (p. 350) *Thomasomys* Coues as only doubtfully worthy of retention, described the following mice under the general name *Oryzomys:* (p. 349) *kalinowskii*, n. sp. (a *Thomasomys*); (p. 350) *incanus*, n. sp. (an *Inomys*); (p. 351) *meridensis*, n. sp.; (p. 351) *flavicans*, n. sp.; (p. 352) *ferrugineus*, n. sp. (a *Phænomys*); (p. 354) *xantheolus*, n. sp.; (p. 355) *phæopus*, n. sp. (a *Melanomys*); (p. 356) *phæopus obscurior*, n. subsp. (a *Melanomys*); (p. 357) *stolzmanni*, n. sp. (an *Oligoryzomys*); (p. 358) *gracilis*, n. sp.; (p. 358) *microtinus*, n. sp. (moved to *Zygodontomys* in 1898); and (p. 359) *Oryzomys* ? (*sic*) *venustus*, n. sp. (a *Hesperomys*).

1895. J. A. Allen described (p. 329) *Oryzomys cherriei*, n. sp. (in 1897 made type of *Zygodontomys*).

1895*a*. Thomas recorded (p. 57) "*gracilis*" from Managua, Costa Rica. He described (p. 58) *Oryzomys princeps*, n. sp. (a *Thomasomys*), suggesting its possible affinity with *Rhipidomys;* (p. 59) *Oryzomys childi*, n. sp. (synonym of *meridensis* according to Bangs, 1900), and (p. 59) *Oryzomys laniger*, n. sp. (a *Thomasomys*).

1895*b*. Thomas described (p. 368) *Oryzomys instans*, n. sp. (a *Chilomys*).

1896. Thomas described (p. 305) *Oryzomys niveipes*, n. sp. (a *Thomasomys*), and *Oryzomys* ? (*sic*) *lugens*, n. sp. (in 1898 made type of *Æpeomys* n. g.).

1897. Allen and Chapman described (p. 19) *Oryzomys delicatus*, n. sp. (an *Oligoryzomys*).

1897*a*. J. A. Allen commented upon (p. 36) the type of *talamancæ* and described (p. 37) *Oryzomys chrysomelas*, n. sp. (a *Melanomys*). He made *cherriei* type of *Zygodontomys*, n. g., and included with it *brevicauda*.

1897*b*. J. A. Allen described (p. 52) *Oryzomys mexicanus*, n. sp., based upon material which in 1890 he had referred to *couesi*. He now considered it distinct from the *couesi* group and near *aquaticus*.

He described also (p. 53) *Oryzomys bulleri*, n. sp.

1897*c*. J. A. Allen described (p. 117) *Oryzomys baroni*, n. sp.

1897*d*. J. A. Allen commented (p. 205) upon a series of "*Oryzomys melanotis* Thomas" (in 1898 re-named *chapmani*). He described *Oryzomys jalapæ*, n. sp.

1897*b*. Thomas described (p. 494) *Oryzomys goeldi*, n. sp. He removed *instans* from *Oryzomys*, making it type of *Chilomys*, n. g.

1897*c*. Thomas described (p. 548) *Oryzomys peninsulæ*, n. sp.

1898. Bangs described (p. 164) *Oryzomys flavicans illectus*, n. subsp.

1898*a*. Thomas described (p. 177) *Oryzomys antillarum*, n. sp., (p. 178). *Oryzomys victus*, n. sp. (an *Oligoryzomys*), and (p. 179) *Oryzomys chapmani*, n. sp., based upon the "*melanotis*" of Allen (1897, p. 205).

1898*b*. Thomas described (p. 454) *Oryzomys vestitus*, n. sp. (a *Thomasomys*).

1898*c*. Thomas described (p. 267) *Oryzomys dryas*, n. sp., based upon a skin from Pallatanga, Ecuador, referred by him in 1894 to *minutus*, (p. 268) *Oryzomys dryas humilior*, n. subsp. (both *Thallomyscus*), and (p. 268) *Oryzomys flavicans subluteus*, n. subsp.

1898. Merriam described (p. 15) *Oryzomys nelsoni*, n. sp.

1898. Trouessart listed (p. 523–529) the following species under *Oryzomys* which have since been removed: *aureus* (a *Thomasomys*), *orobinus* Wagner (a *Zygodontomys*), *brachyurus* Wagner (a *Zygodontomys*), *arviculoides* Wagner (a *Zygodontomys*), *peruvianus* Peale (see also Cassin, 1858) (an *Oligoryzomys*), *tener* Winge (a *Hesperomys*), *expulsus* Lund

(a *Hesperomys*), "*musculipes*," a misprint for *maculipes* Pictet (an *Œcomys* ?), *spinosus* (a *Neacomys*), *venustus* (a *Hesperomys*), *microtinus* (corrected to *Zygodontomys*, appendix, p. 1327), *cherriei* (a *Zygodontomys*), *brevicauda* (a *Zygodontomys*), *princeps* (a *Thomasomys*), *ferrugineus* (a *Phænomys*).[1]

1899. Bangs described (p. 9) *Oryzomys navus*, n. sp. (an *Oligoryzomys*).

1899. J. A. Allen described the following *Oryzomys: Akodon columbianus*, n. sp. (removed in 1904 to *Oryzomys* (*Melanomys*)); (p. 204) *maculiventer*, n. sp.; (p. 206) *trichurus*, n. sp.; (p. 207) *sanctæmartæ*, n. sp. (a *Zygodontomys*); (p. 208) *mollipilosus*, n. sp.; (p. 209) *magdalenæ*, n. sp.; (p. 210) *villosus*, n. sp.; (p. 210) *palmarius*, n. sp.; (p. 211) *tenuicauda*, n. sp.; (p. 212) *modestus*, n. sp.; and (p. 212) *fulviventer*, n. sp.

1899*a*. Thomas described (p. 152) *Oryzomys bæops*, n. sp. (a *Thomasomys*).

1899*b*. Thomas described (p. 280) *Oryzomys indefessus*, n. sp. (a *Nesoryzomys*).

1899*c*. Thomas described (p. 379) *Oryzomys auriventer*, n. sp.

1900. Bangs declared (p. 93) *childi* a synonym of *meridensis* and recorded "*laticeps*" from Santa Marta (see Allen, 1904*a*). He was inclined to believe (p. 94) that Allen's *trichurus* was a *Rhipidomys*.

He erected (p. 94) *Oligoryzomys*, n. subg. of *Oryzomys* with type *Oryzomys navus* Bangs to contain the "pygmy oryzomys," and included *dryas humilior* in the subgenus.

He erected (p. 96) a second subdivision, *Erioryzomys*, n. subg., with type *Oryzomys monochromos*, n. sp. *Erioryzomys* was practically equivalent to *Thomasomys*.

The following is a list of the species described previous to Bang's paper, which seem to me (see remarks in Part 2, p. 3) to belong either in *Oligoryzomys* or *Thallomyscus*.

nigripes	*eliurus*	*costaricensis*
longitarsus	*pygmæus*	*delicatus*
longicaudatus	*peruvianus*	*stolzmanni*
magellanicus	*minutus*	*victus*
flavescens	*fulvescens*	*dryas* (*Thallomyscus*)
destructor	*coppingeri*	*dryas humilior* (*Thallomyscus*)
melanostoma		*navus*

1900. J. A. Allen described (p. 225) *Oryzomys keaysi*, n. sp., and *Oryzomys obtusirostris*, n. sp.

[1]**Note:** *dorsalis* and *d. obscura* were listed (p. 537) under *Akodon*.

1900*a*. Thomas described (p. 272) *Oryzomys sylvaticus*, n. sp., and (p. 273) *Oryzomys balneator*, n. sp., whose nearest ally he stated to be *bæops* (a *Thomasomys*).

1900*b*. Thomas described (p. 354) *Oryzomys prætor*, n. sp. (a *Thomasomys*), remarking upon the *Thomasomys* group of rats.

1901*a*. Merriam described (p. 103) *Oryzomys cozumelæ*, n. sp. (This description of July 19 apparently antedates that given in Proc. Wash. Acad. Sci., III, p. 280, dated July 26.)

1901*b* Merriam, in his 'Synopsis' of *Oryzomys* described the following species from south of the Mexican border: (p. 279) *albiventer*, n. sp.; (p. 280) *cozumelæ*, "n. sp." (see previous statement, 1901*a*); (p. 281) *crinitus*, n. sp.; (p. 282) *crinitus aztecus*, n. subsp.; (p. 283) *mexicanus peragrus*, n. subsp.; (p. 284) *richmondi*, n. sp.; (p. 285) *jalapæ rufinus*, n. subsp.; (p. 285) *zygomaticus*, n. sp.; (p. 286) *teapensis*, n. sp.; (p. 287) *rufus*, n. sp.; (p. 288) *goldmani*, n. sp.; (p. 289) *chapmani caudatus*, n. subsp.; (p. 290) *chapmani saturatior*, n. subsp.; (p. 290) *chapmani dilutior*, n. subsp.; (p. 290) *palatinus*, n. sp.; (p. 291) *hylocetes*, n. sp.; (p. 291) *rhabdops*, n. sp.; (p. 292) *angusticeps*, n. sp.; (p. 293) *rostratus*, n. sp.; (p. 294) *rostratus megadon*, n. subsp.; and (p. 294) *yucatanensis*, n. sp.

He divided the North and Central American species of *Oryzomys* into four main groups: *palustris-mexicanus* group, *chapmani* group, *melanotis* group, and *fulvescens* group. (This last was equal to *Oligoryzomys*.)

1901*b*. Thomas described (p. 251) *Oryzomys tectus*, n. sp., and (p. 252) *Oryzomys panamensis*, n. sp.

1901*c*. Thomas, writing of *subflavus* Wagner (a *Delomys* ?), considered (p. 528) that "*laticeps*" of Winge, "*vulpinus*" Lund, and *vulpinoides* Schinz (new name for the latter) were synonyms of *subflavus*.

He described (p. 528) *Oryzomys lamia*, n. sp., and stated (p. 530) that *saltator* Winge represented the original *O. laticeps* Lund.

He also described (p. 536) *Oryzomys boliviæ*, n. sp., comparing it with "*intermedius*" (Leche).

1901. J. A. Allen described (p. 405) *Oryzomys bolivaris*, n. sp., (p. 406) *Oryzomys castaneus*, n. sp., (p. 406) *Oryzomys perenensis*, n. sp., and (p. 407) *Oryzomys rivularis*, n. sp.

1902. Bangs described (p. 34) *Oryzomys devius*, n. sp.
He listed (p. 37) *chrysomelas* Allen (a *Melanomys*) under *Zygodontomys*.

1902*a*. Thomas remarked (p. 60) upon *dorsalis obscura* Leche (a *Delomys*).

1902*b*. Thomas described (p. 129) *Oryzomys levipes*, n. sp., and (p. 130) *Oryzomys yunganus*, n. sp.

1902*c*. Thomas described (p. 247) *Oryzomys phæopus olivinus*, n. subsp. (a *Melanomys*), and (p. 248) proposed separating *Melanomys*, n. subg. with type *O. phæopus*.

The following species, described previous to Thomas's paper (1902), are now considered by authors to belong in *Melanomys*.

caliginosus
phæopus phæopus
phæopus obscurior
chrysomelas
columbianus

1902. Robinson and Lyon described (p. 142) *Oryzomys medius*, n. sp.

1903. Elliot described (p. 145) *Oryzomys molestus*, n. sp.

1903. Thomas again advised (pp. 40–41) the separation of *Melanomys* from *Oryzomys*.

1904. Elliot described (p. 266) *Oryzomys jalapæ apatelius*, n. subsp.

1904. Thomas described (p. 142) *Oryzomys oniscus*, n. sp.

1904*a*. J. A. Allen described (p. 327) *Oryzomys klagesi*, n. sp. He stated (p. 439) that *maculiventer* Allen = *meridensis* Thomas (see also Bangs, 1900), and that *mollipilosus* Allen = "*laticeps*" Bangs.

1904. Heller, after listing *Oryzomys galapagoensis* and *O. bauri*, erected (p. 241) *Nesoryzomys*, n. g. He removed *indefessus* Thomas to *Nesoryzomys*.

1905. J. A. Allen, after listing the several subgenera in the synonymy of *Oryzomys*, briefly outlined (p. 46) the genus.

1905. Trouessart recognized (pp. 415–423) the subgenera *Oryzomys*, *Melanomys*, *Oligoryzomys*, and *Erioryzomys*. The last contained only *monochromos* and *laniger*, but a footnote suggesting inclusion of *bæops*, *niveipes*, *vestitus*, *villosus*, etc. Thus *Erioryzomys* was practically a synonym of *Thomasomys*. Under *Oryzomys*, Trouessart listed, in addition to the long series of names which may now be taken as rightly belonging there, the following: (p. 419) *aureus* Tomes (a *Thomasomys*); *stolzmanni* (an *Oligoryzomys*); *indefessus* (a *Nesoryzomys*);

(p. 420) *orobinus, brachyurus* (both *Zygodontomys*); (p .421) *tener* and *venustus* (both *Hesperomys, sensu stricto*).

"*Anguya* Azara" was written (p. 420) for *angouya* Desmarest. *Flavescens* was made a subspecies of *longicaudatus*. *Philippii*, shown by Wolffsohn (1910) to be a synonym of *longicaudatus* (an *Oligoryzomys*), was allowed (p. 421) specific rank. *Vulpinoides* was made a synonym of *subflavus* Wagner. A whole series of the *Mus* species of Philippi was stated in a footnote (p. 421) to be probably *Oryzomys*.

Trouessart removed (p. 408) *pyrrhonotus, kalinowskii, incanus* (an *Inomys*), and *paramorum* from *Oryzomys* and placed them with the original *cinereus* and *taczanowskii* of Coues in *Thomasomys*.[1]

1906. Thomas, in addition to the species listed by Trouessart (1905, p. 408), removed (p. 443) *princeps, aureus, bæops, niveipes, ferrugineus* (a *Phænomys*), *dorsalis* and *sublineatus* (both *Delomys*) from *Oryzomys* to *Thomasomys*.

1908. J. A. Allen described (p. 655) *Oryzomys alfaroi incertus*, n. subsp., *Oryzomys ochraceus*, n. sp. (shown by Goldman 1916 to be a *Nectomys*), and *Oryzomys carrikeri*, n. sp.

1910. Thomas described (p. 186) *Oryzomys macconnelli*, n. sp.

1910. J. A. Allen thought (p. 98) *richmondi* Merriam "very near to, if not the same as" *couesi* Thomas and synonymized *alfaroi incertus* Allen with *alfaroi*. He described (p. 99) *Oryzomys richardsoni*, n. sp.

1911. Goldman described (p. 5) *Oryzomys idoneus*, n. sp. (a *Melanomys*), *Oryzomys frontalis*, n. sp., *Oryzomys bombycinus*, n. sp., and *Oryzomys gatunensis*, n. sp.

1912. Osgood described (p. 49) *Oryzomys griseolus*, n. sp. (an *Oligoryzomys*).

1912. J. A. Allen described (p. 83) *Oryzomys palmiræ*, n. sp., and *Oryzomys pectoralis*, n. sp.

1913. Goldman described (p. 5) *Oryzomys pirrensis*, n. sp.

1913*b*. J. A. Allen, when revising (pp. 533–555) the group *Melanomys*, treated it (p. 535) as a full genus, recognizing fourteen forms. He emphasized (p. 534) its distinctness from *Zygodontomys*.

1913*c*. J. A. Allen described (p. 597) *Oryzomys helvolus*, n. sp., (p. 597) *Oryzomys o'connelli*, n. sp., (p. 598) *Oryzomys vicencianus*, n. sp., and (p. 598) *Oryzomys incertus* (preoccupied by *incertus* Allen, 1908, and re-named *mureliæ* Allen, 1915).

[1]Additional Note: *Hesperomys dorsalis obscura* Leche, 1886, was held to be preoccupied by *Mus Abrothrix) obscurus* Waterhouse, 1837 (an *Akodon*) and *dorsalis lechei* was proposed in its stead.

1913. Osgood described (p. 97) *Oryzomys polius*, n. sp. He remarked (p. 98) that *O. baroni* appeared to be only a slightly differentiated subspecies of *xantheolus*.

1914. Thomas described (p. 241) *Oryzomys albigularis mærex*, n. subsp., and (p. 242) *Oryzomys caracolus*, n. sp.

1914*b*. Osgood suggested (p. 157) that *baroni* was perhaps indistinguishable from *xantheolus*, but actually only reduced it to the subspecies *xantheolus baroni*.

1915. J. A. Allen re-named *incertus* Allen, 1913 (preoccupied by *alfaroi incertus* Allen, 1908), *mureliæ*.

1915. Goldman described (p. 127) *Oryzomys guerrensis*, n. sp., (p. 128) *Oryzomys nitidus alleni*, n. subsp., (p. 128) *Oryzomys alfaroi dariensis*, n. subsp., (p. 129) *Oryzomys couesi regillus*, n. subsp., and (p. 130) *Oryzomys fulvescens lenis*, n. subsp. (an *Oligoryzomys*).

1916*a*. Goldman stated (p. 127) that *ochraceus* Allen (1908) was not an *Oryzomys* but a *Nectomys*.

1916*a*. J. A. Allen described (p. 85) *Oryzomys barbacoas*, n. sp.

1917*a*. Thomas erected (p. 1) *Microryzomys*, new subgenus of *Oryzomys*, with type *Oryzomys minutus* Tomes and described (p. 1) *Oryzomys* (*Microryzomys*) *aurillus*, n. sp.

1918. Goldman published 'The Rice Rats of North America.' In his revision, instead of the four groups of Merriam (1901), he used three subgenera, *Oryzomys*, *Oligoryzomys*, and *Melanomys* (reduced again to subgeneric rank—see Allen 1913), the first of which he divided into eight groups. A number of forms were reduced to synonymy or subspecific rank (see list of species).

He described (p. 51) *Oryzomys melanotis colimensis*, n. subsp.

1921*a*. Thomas described (p. 177) *Oryzomys wavrini*, n. sp.

1921*b*. Thomas described (p. 449) *Oryzomys barbacoas ochrinus*, n. subsp.

1921*c*. Thomas described (p. 356) *Oryzomys intectus*, n. sp.

1921*d*. Thomas remarked (p. 228) further upon *Oryzomys* (*Microryzomys*) *aurillus*.

1924. Miller divided (pp. 352–364) *Oryzomys* into the subgenera *Oryzomys*, *Oligoryzomys* and *Melanomys*. He followed Goldman (1918) quite closely.

1924. Thomas wrote (p. 143) briefly on *Oryzomys ratticeps* and described *Oryzomys ratticeps tropicius*, n. subsp., and *Oryzomys ratticeps paraganus*, n. subsp.

1924. Anthony described (p. 7) *Oryzomys balneator hesperus*, n. subsp.
1925. Thomas described (p. 577) *Oryzomys legatus*, n. sp.
1926. Anthony described (p. 4) *Oryzomys auriventer nimbosus*, n. subsp.
1927*b*. Thomas listed (pp. 548–549) his choice of lectotypes and lectoparatypes in the British Museum for the following forms:

	Lectotypes	Lectoparatypes	Remarks
couesi male	75.2.26.15 Coban, Guatemala	60.2.11.8 and 79.6.20.3	Already selected: 1893
nitidus male	85.4.1.41 Amable Maria, Peru		Specimen figured

1927*c*. Thomas agreed (p. 599) with Osgood (1914) that *baroni* should be synonymized with *xantheolus*.
1932. Murie (1932) described (p. 1) *Oryzomys couesi pinicola*, n. subsp.
1932. Harris described (p. 5) *Oryzomys aphrastus*, n. sp.

PRESENT STATUS OF *ORYZOMYS* AND ITS SUBGENERA

Genus *Oryzomys* Baird	Type by original designation: *Mus palustris* Harlan
Subgenus *Oryzomys* Baird	
Subgenus *Oligoryzomys* Bangs (=*Microryzomys* Thomas)	Type by original designation: *Oryzomys navus* Bangs
Subgenus *Thallomyscus* Thomas	Type by original designation: *Oryzomys dryas* Thomas
Subgenus *Melanomys* Thomas	Type by original designation: *Oryzomys phæopus* Thomas

List of Named Forms with Type Localities

As stated at the beginning of this paper, the larger subgenera have been classed under generalized phytogeographical provinces, illustrated in the accompanying map and defined below. That the areas are often of highly complex nature and intergrade freely is admitted. However, it is believed that each region expresses a certain broad homogeneity of fauna and flora.

In constructing the map, works on plant geography by Strasburger, Hardy and others, on ornithology by Chapman, and other general reports have been consulted.

Phytogeographical Provinces

1.—Central America north of Lake Nicaragua. The line of transition in this region has been pointed out by Harshberger, 1911, 'Die Vegetation der Erde,'

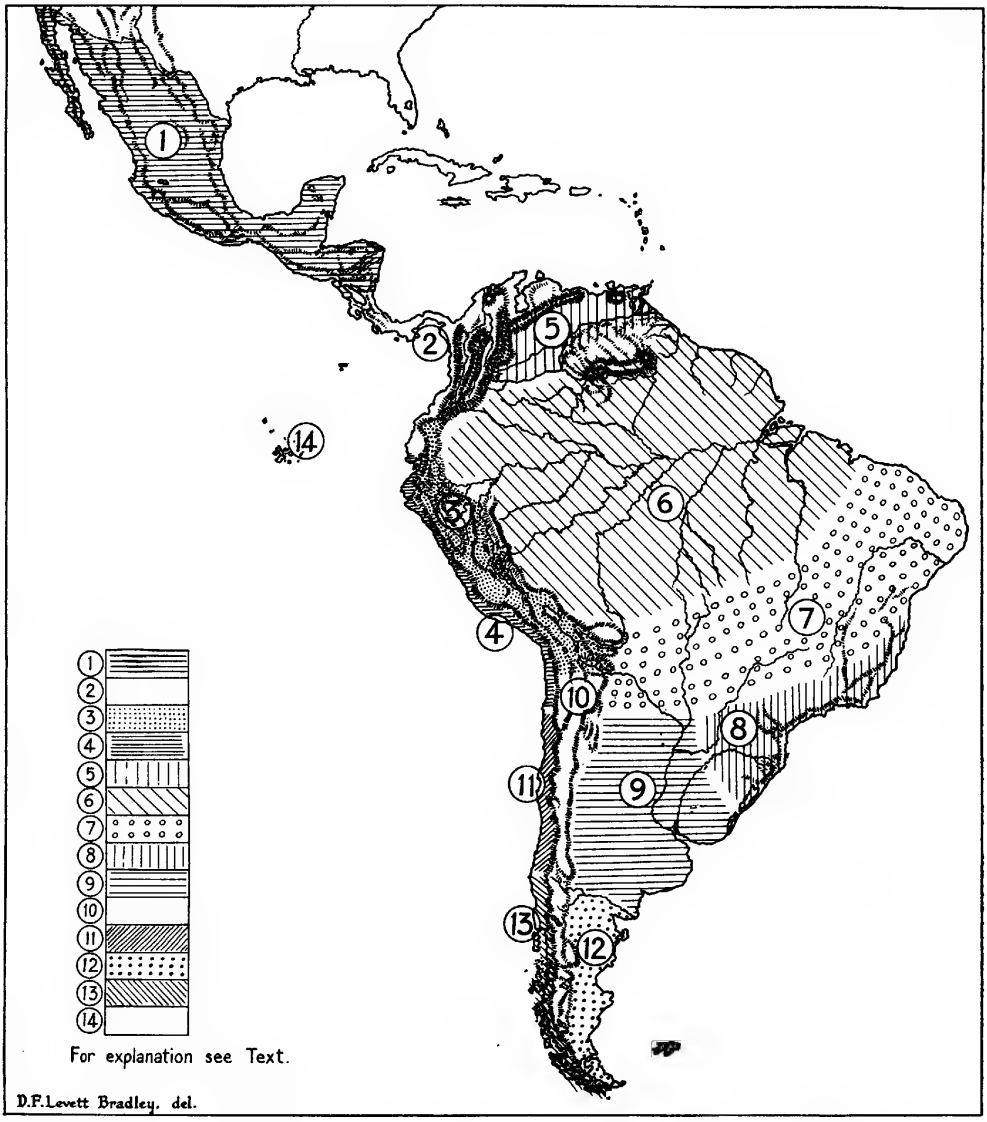

Fig. 1. Map to show phytogeographical areas of Central and South America. For definitions see text, pp. 12-14.

XIII, p. 668. I have not yet worked upon the subdivisions of this area and provisionally treat it as a unit.

2.—From Lake Nicaragua, south and east through Panama to the Caribbean and Pacific coastal strips,—eastward to La Guaira, Venezuela, and southward to Ecuador. The region includes the Andean slopes as high approximately as 6000 feet.

3.—The Andes north of Chile from 6000 feet[1] up to paramo.

4.—Costal arid region from southern Ecuador to northern Chile.

5.—Central and eastern Venezuela with Trinidad and other nearby islands.

6.—Amazonia, from Guiana and Pará, including Guiana Mountains, to the Andes from Colombia to Bolivia, up to 6000 feet.

7.—The "caatinga" region of Ceará to the savannas of Matto Grosso and the northern chaco, including northern Jujuy.

8.—The moist subtropics and temperate of southern Brazil and eastern Paraguay.

9.—The pampas of Uruguay and Argentina (delta of Parana River included).

10.—The upper slopes of the Andes south of Bolivia. Above 5000–6000 feet.

11.—The "mediterranean" lowlands of the Chilean central provinces.

12.—Arid Patagonian area and arid foothills west and south of San Luis, Argentina.

13.—Temperate rain forests from Valdivia, Chile to Fuegia.

14.—Galapagos Islands.

Oryzomys (*Oryzomys*)

In listing the Central American forms of this subgenus I have followed Goldman's revision of the North American (and Jamaican) species, with the exception of his Panamanian groups *bombycinus, devius,* and *tectus.* The species of these three groups I have included in my phytogeographical region No. 2.

It will be seen that the subgenus appears to be absent only from regions 9 to 13.

Central American region based upon Goldman (includes region 1)

couesi couesi (Alston)	Coban, Guatemala
teapensis Merriam[2]	Teapa, Tabasco, Mexico
goldmani Merriam[2]	Coatzacoalcos, Vera Cruz, Mexico
jalapæ Allen[2]	Jalapa, Mexico
jalapæ rufinus Merriam[2]	Catemaco, Vera Cruz, Mexico
jalapæ apatelius Elliot[2]	San Carlos, Vera Cruz, Mexico
richardsoni Allen[2]	Peña Blanca, Atlantic coast forests, Nicaragua, 1500 ft.
couesi richmondi Merriam	Escondido River, Nicaragua
couesi zygomaticus Merriam	Nenton, Guatemala
couesi mexicanus Allen	Hacienda San Marcos, Jalisco, Mexico
bulleri Allen[3]	Valle de Banderas, Terro Tepic, Jalisco, Mexico
rufus Merriam[3]	Santiago, Tepic, Mexico

[1]Not rigidly adhered to. Species from about 6000 feet are placed in highland or lowland group according to their seeming affinities.

[2]Synonymized by Goldman with *couesi couesi* (Alston).

[3]Synonymized by Goldman with *couesi mexicanus* Allen.

couesi aztecus Merriam	Yautepec, Morelos, Mexico
couesi crinitus Merriam	Tlalpam, Federal District, Mexico
couesi regillus Goldman	Los Reyes, Michoacan, Mexico
couesi albiventer Merriam	Ameca, Jalisco, Mexico
couesi pinicola Murie	Twelve miles south of El Cayo, British Honduras
molestus Elliot[1]	Ocotlan, Jalisco, Mexico
couesi peragrus Merriam	Rio Verde, San Luis Potosi, Mexico
fulgens Thomas	"Mexico"
gatunensis Goldman	Gatun, Canal Zone, Panama
cozumelæ Merriam	Cozumel Island, Mexico
antillarum Thomas	Jamaica
peninsulæ Thomas	Santa Anita, Lower California, Mexico
nelsoni Merriam	Maria Madre Island, Mexico
melanotis melanotis Thomas	Mineral San Sebastian, Jalisco, Mexico
melanotis colimensis Goldman	Armeria, Colima, Mexico
rostratus rostratus Merriam	Metlaltoyuca, Puebla, Mexico
rostratus megadon Merriam	Teapa, Tabasco, Mexico
rostratus yucatanensis Merriam	Chichen Itza, Yucatan, Mexico
alfaroi alfaroi (Allen)	San Carlos, Costa Rica
alfaroi incertus Allen[2]	Rio Grande, south of Tuma, Nicaragua
alfaroi dariensis Goldman	Cana, Panama, 2000 ft.
alfaroi angusticeps Merriam	Volcan Santa Maria, Guatemala
alfaroi rhabdops Merriam	Calel, Guatemala
alfaroi caudatus Merriam	Comaltepec, Oaxaca, Mexico
alfaroi palatinus Merriam	Teapa, Tabasco, Mexico
alfaroi saturatior Merriam	Tumbala, Chiapas, Mexico
alfaroi chapmani Thomas	Jalapa, Vera Cruz, Mexico
alfaroi dilutior Merriam	Huauchinango, Puebla, Mexico
guerrerensis Goldman	Omilteme, Guerrero, Mexico
hylocetes Merriam	Chicharras, Chiapas, Mexico
talamancæ Allen	Talamanca, Costa Rica
panamensis Thomas[3]	Open savanna, City of Panama, Panama
carrikeri Allen[6]	Rio Sicsola, Talamanca, Costa Rica
aphrastus Harris	Joquin de Dota, Pacific slope of mountains south of Cartago, Costa Rica

Region 2 (north and south of the Andes, and Panama)

flavicans flavicans Thomas	Mérida, Venezuela
flavicans illectus Bangs	Pueblo Viéjo, Santa Marta Mts., Colombia
flavicans subluteus Thomas	Western Cundinamarca, Colombia
gracilis Thomas	Concordia, Medellin, Colombia
trichurus Allen	El Libano plantation, near Bonda,

[1]Synonymized by Goldman with *couesi albiventer* Merriam.
[2]Synonymized by Goldman with *alfaroi alfaroi* (Allen).
[3]Synonymized by Goldman with *talamancæ* Allen.

	Santa Marta district, Colombia, 500 ft.
mollipilosus Allen	Valparaiso, Santa Marta district, Colombia, 4500 ft.
sylvaticus Thomas	Santa Rosa, Southern Ecuador
magdalenæ Allen	Minca, Santa Marta district, Colombia, 2000 ft.
villosus Allen	Valparaiso, Santa Marta district, Colombia, 4500 ft.
tectus tectus Thomas	Bogava, Chiriqui, Panama
tectus frontalis Goldman	Corozal, Canal Zone, Panama
bolivaris Allen	Porvenir, Bolivar, Ecuador
castaneus Allen	St. Javier, northwestern Ecuador
rivularis Allen	Rio Verde, northern Ecuador, 3200 ft.
devius Bangs	Boquete, Panama
medius Robinson and Lyon	San Julian, eight miles east of La Guaira, Venezuela
bombycinus bombycinus Goldman	Cerro Azul, Chagres R., Panama, 2500 ft.
bombycinus alleni Goldman	Tuis, 35 miles east of Cartago, Costa Rica
palmiræ Allen	Mira Flores, east of Palmira, eastern slope of central Andes, Colombia, 6200 ft.
pirrensis Goldman	Rio Limon, Mt. Pirri, eastern Panama, 4500 ft.
caracolus Thomas	Galiparé, Cerro de Avila, near Caracas, Venezuela
barbacoas barbacoas Allen	Barbacoas, southwestern Colombia, 75 ft.
barbacoas ochrinus Thomas	"West of Quito," Ecuador
intectus Thomas	Santa Elena, Medellin, Colombia

Region 3 (Andes above 6000 ft.)

albigularis albigularis (Tomes)	"taken *en camino* on my return from Pallatanga." Ecuador.
albigularis mærex Thomas	Mindo, northwest of Quito, Ecuador
meridensis Thomas[1]	Mérida, Venezuela
childi Thomas[1]	Bogotá, Colombia
maculiventer Allen[2]	Sierra el Libano, Santa Marta district, Colombia 6000 ft.
auriventer auriventer Thomas	Mirador, below Baños, upper Pastaza R., Ecuador
auriventer nimbosus Anthony	San Antonio, R. Ulva, northeast slope of Mt. Tunguragua, Ecuador, 6700 ft.

[1]Bangs 1900 declared *childi* a synonym of *meridensis*.
[2]Stated by Allen (1904*a*) to be a synonym of *meridensis*.

keaysi Allen	Juliaca, Peru, 6000 ft.
obtusirostris Allen	Juliaca, Peru, 6000 ft.
pectoralis Allen	Coast of western Andes, 40 miles west of Popayan, Cauca, Colombia, 10,340 ft.
balneator balneator Thomas	Mirador, 20 miles east of Baños, eastern Ecuador
balneator hesperus Anthony	El Chiral, western Andes, Prov. El Oro, Ecuador, 5350 ft.
baroni Allen[1]	Malea, Cajabamba, Peru, 8000 ft.

Region 4 (Pacific coastal strip)

xantheolus Thomas[1]	Tumbez, northern Peru

Region 5 (central Venezuela to Trinidad)

speciosus Allen and Chapman	Princestown, Trinidad
trinitatis Allen and Chapman	Princestown, Trinidad
velutinus Allen and Chapman	Princestown, Trinidad
palmarius Allen	Quebrada Seca, Prov. Sucre, Venezuela
tenuicauda Allen	Los Palmales, Venezuela
modestus Allen	Campo Alegre, Venezuela, 5000 ft.
fulviventer Allen	Quebrada Seca, Prov. Sucre, Venezuela
klagesi Allen	El Llagual, Venezuela
helvolus Allen	Villa Vicencio, 50 miles southeast of Bogotá, Columbia, 1600 ft.
o'connelli Allen	Buenavista, 50 miles southeast of Bogotá, Colombia, 4500 ft.
vicencianus Allen	Villa Vicencio, 50 miles southeast of Bogotá, Colombia, 1500 ft.

Region 6 (Amazonia)

concolor (Wagner)	R. Curicuriari, Rio Negro, northwestern Brazil
nitidus nitidus (Thomas)	Junin and Amable Maria, Peru
goeldi Thomas	Itaitúba, Tapajoz R., Brazil
boliviæ Thomas	Mapiri, upper Beni R., Bolivia, 800 m.
perenensis Allen	Perené, Dept. Junin, Peru, 800 m.
levipes Thomas	Limbane, Dept. Puno, Peru
yunganus Thomas	Charuplaya, Securé River, just north of 16° S., Bolivia, 1350 m.
macconnelli Thomas	R. Supinaam, lower R., Essequibo, British Guiana
mureliæ Allen 1915 (new name for *incertus* Allen, 1913)	La Murelia, R. Bodoquera, Caquetá, Colombia, 600 ft.

[1] *Baroni* is probably synonymous with *xantheolus*.

polius Osgood	Tambo Carrizal, east of Balsas, Marañon R., Peru, 5000 ft.
legatus Thomas	Carapari, southern Bolivia, 1000 m.

Region 7 (Ceará to Matto Grosso)

cephalotes (Desmarest)	Saint-Ignace Gouazou, 34½ leagues S. ¼ S. E. of Asuncion, Paraguay
laticeps laticeps (Lund)	Lagoa Santa, Brazil
vulpinoides (Schinz)	Lagoa Santa, Brazil
saltator (Winge)	Lagoa Santa, Brazil
oniscus Thomas	São Lourenço, near Pernambuco, Brazil
wavrini Thomas	Jesematathla, west of Concepcion, northern Chaco of Paraguay
ratticeps paraganus Thomas	Sapucay, Paraguay
lamia Thomas	Rio Jordao, Minas Geraes, Brazil

Region 8 (south Brazil)

angouya (Desmarest)	Wild and mountainous country of village of Atira, 50 leagues from San Ignace Gouazou, Paraguay
cinnamomeus (Pictet and Pictet)	Bahia, Brazil
ratticeps ratticeps (Hensel)	Woods. Rio Grande do Sul, Brazil
laticeps intermedia (Leche)	Brazil (probably Rio Grande do Sul)
ratticeps tropicius Thomas	Piquete, São Paulo, Brazil

Region 14 (Galapagos)

galapagoensis (Waterhouse)	Chatham Island, Galapagos Archipelago
bauri Allen	Barrington Island, Galapagos Islands